

PRODUCT INFORMATION



Cdk7 (human, recombinant)

Item No. 42000

Overview and Properties

Synonyms: CAK1, CDK-activating Kinase 1, Cell Division Protein Kinase 7, Cyclin-dependent Kinase 7

Source: Recombinant human N-terminal GST-tagged Cdk7 expressed in insect cells

Amino Acids: 1-346 (full length)

Uniprot No.: P50613

Molecular Weight: 65.6 kDa

Storage: -80°C (as supplied); avoid repeated freeze/thaw cycles

Stability: ≥1 year

Supplied in: 50 mM Tris-HCl, pH 7.5, 200 mM sodium chloride, and 20% glycerol

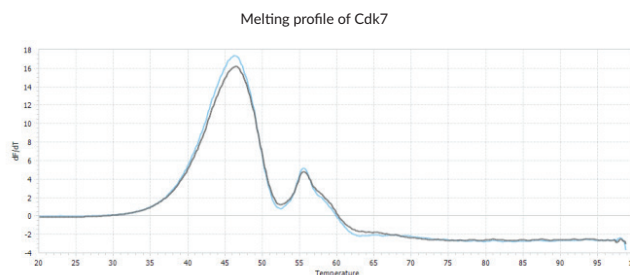
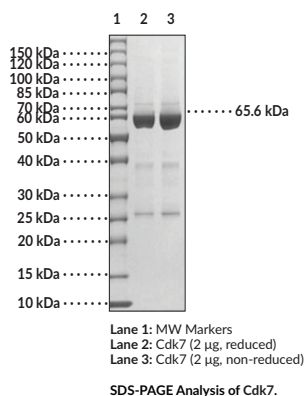
Protein

Concentration: *batch specific* mg/ml

Special Conditions: Rapid thaw with running water.

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Cyclin-dependent kinase 7 (Cdk7) is a CDK-activating kinase (CAK) that is mainly involved in cell cycle progression and gene transcription, but also has a role DNA repair.^{1,2} It is composed of an N-terminal domain that binds cyclin H and a C-terminal domain that binds the CAK assembly factor MAT1 and putative nuclear localization sequences at the N- and C-termini.² Cdk7 is ubiquitously expressed and localizes to the nucleus.³ In the context of cell cycle progression, Cdk7, in the CAK complex with cyclin H and MAT1, phosphorylates other CDKs such as Cdk1/cyclin A and Cdk2/cyclin E to activate the cell cycle.² Cdk7 is also a component of the transcription factor IIH (TFIIH) complex where it activates RNA polymerase II directly via phosphorylation, which influences transcription initiation, or indirectly through activation of Cdk9, which promotes elongation. Knockout of CDK7 or inhibition of Cdk7 inhibits breast cancer proliferation *in vitro* and tumor growth *in vivo*.⁴ The intratumoral expression of CDK7 is increased in patients with oral squamous cell carcinoma (OSCC) and is associated with increased tumor grade and poor prognosis.⁵ Cayman's Cdk7 (human, recombinant) protein has a calculated molecular weight of 65.6 kDa.

References

1. Diab, S., Yu, M., and Wang, S. CDK7 inhibitors in cancer therapy: The sweet smell of success? *J. Med. Chem.* **63**(14), 7458-7474 (2020).
2. Gong, Y. and Li, H. CDK7 in breast cancer: Mechanisms of action and therapeutic potential. *Cell Commun. Signal.* **22**(1), 226 (2024).
3. Bartkova, J., Zemanova, M., and Bartek, J. Expression of CDK7/CAK in normal and tumour cells of diverse histogenesis, cell-cycle position and differentiation. *Int. J. Cancer* **66**, 732-737 (1996).
4. Wang, Y., Zhang, T., Kwiatkowski, N., et al. CDK7-dependent transcriptional addiction in triple-negative breast cancer. *Cell* **163**(1), 174-186 (2015).
5. Jiang, L., Huang, R., Wu, Y., et al. Overexpression of CDK7 is associated with unfavourable prognosis in oral squamous cell carcinoma. *Pathology* **51**(1), 74-80 (2019).

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